USSR   UDC 669.245'26'293'27'28:620.18:620.17

BELINSKAYA, L. A., BRAUN, M. P., IONKINA, Ye. M., LEBEDEV, K. P., and
KHIL'CHEVSKAYA, T. V.

"Structure, Phase Composition, and Certain Properties of Cast Complex Nickel-
Base Alloys With Niobium"

Translation of Abstract: A study was made of structural changes and certain
properties of Ni-Cr-base alloys with a large Nb content (7.5-8%) when alloyed
with tungsten (3%) and molybdenum (5.10%). The alloys were smelted in open
induction furnaces, and specimens were made according to smelted models.
Phase composition was studied after isolation of precipitates in specially
selected electrolytes. The investigation of microstructure was made on
as-cast specimens after heat treatment consisting in hardening from 1200°
with subsequent tempering at 900" for 16 hours, Four illustrations. Three
tables. Bibliography with seven titles.

1/1

USSR   UDC 621.565:629.12

KAN, A. V., IONOV, A. G.

"Description of the Cooling Installation with Screw Compressors on Amurskiy
Zaliv-Class Ships"

Abstract: The Amurskiy zaliv is the first of a series of 18,900 ton refri-
gerated transport ships constructed for the Soviet Union in France. The
l.o.a. is 164.5 m, beam 22 m, speed 17.3 knots. There is particular in-
terest in the automated refrigeration equipment, planned to operate without
human control 16 hours per day. The installation consists of 5 independent
machines (1 reserve), each including a type S 54-2E screw compressor. The
cold productivity of the machine is 110,000 kcal/hr at $t_0 = -38°C$, $t_f =$
$= 35°C$. Each electric motor is rated at 160 kw. The machine includes an
oil separator, condensor with a surface of 69 m^2 with receiver capacity
480 1, 2 filter-dryers, ribbed air coolers for the hatches. Each system
carries about 500 kg of Freon-22. The single-stage screw compressor con-
sists of driving and driven rotors. The blade shape, plus oil injection,
provide a high degree of compression. Cold production is smoothly regulated
between 10 and 100% by changing the effective length of the rotors by axial
movement of a valve. Experience gained from the operation of these cooling
1/2

USSR

KAN, A. V., IONOV, A. G., Kholodil'naya Tekhnika, No 9, Sep, 1972, pp 19-21.

installations indicates that the use of screw-type, single-stage compressors greatly simplifies the design and operation of cooling installations, that screw-type compressors are reliable, that direct-cooling air coolers are most efficient, and that this freon installation meets todays requirements for size, weight, power and usage characteristics.

2/2

USSR

UDC 547.242

GATILOV, Yu. F., IONOV, L. B., KOROVYAKOV, A. P., and KOKORINA, L. G., Kazan'
Pedagogical Institute and Udmurt State University

"Synthesis and Some Reactions of Tertiary Asymmetric Cyanoarsines"

Abstract: Several novel asymmetric tertiary cyanoarsines have been synthe-
sized. For example, ethyl-p-tolylchloroarsine in acetone solution after a
2 hr refluxing with potassium cyanide in water yields ethyl-p-tolylcyano-
arsine, b.p. 113°/2 mm, d_4^{20} 1.2693, n_D^{20} 1.5652. The products could be
oxidized to respective oxides: heating the nitrile of alkylarylarsineformic
acid with hydrogen peroxide yields the corresponding oxide, without affect-
ing the aromatic substituent. To oxidize the methyl group on the phenyl
substituent, aqueous potassium permanganate must be used.

1/1

USSR

UDC 547.242

GATILOV, YU. F., IONOV, L. B., MOLODTSOV, S. S., and KOVYRZINA, V. P., Kazan'
State Pedagogical Institute

"The Question of the Stereochemistry of Arsinous Acids"

Abstract: It was shown that the rearrangement of the enantiomers of tertiary
arsine oxides due to the action of methyl iodide leads to the isolation of
enantiomers of corresponding arsinous acid esters. Investigation of this rear-
rangement -- a process occuring by the S_N2 mechanism -- by the differential
thermal analysis showed that the inversion of relative configuration took place.

1/1

Alkaloids

"Concerning the Synthesis of Some Enantiomers of Tertiary Arsines and Their Oxides"

Abstract: A complex of racemic ethyl-n.-butyl-p-carboxyphenylarsine with
morphine was synthesized. The complex has $[\alpha]_D^{20}$ -96.54°. Fractional
crystallization of compound (I) yielded diastereomers which were colorless
well-formed acicular crystal salts which melt with dissociation. They dissolve
readily in lower alcohols, acetone and nitromethane, and are insoluble in
absolute ether. Separation of the complexes with 0.3 N HCl gives the corres-
ponding enantiomers of ethyl n-butyl-p-carboxyphenylarsine. Enantiomers of
other arsines were synthesized by separating the corresponding complexes,
using quinine as the optically active agent. Enantiomers of the corresponding
oxides were produced by oxidizing the synthesized optically active arsines with
nitrogen dioxide. This reaction yielded a number of previously unreported
enantiomers of dialkyl- and alkyl(aryl) carboxyphenyl-arsine oxides. All
the enantiomers of tertiary arsine oxides were white crystals which dissolve
readily in water and alcohol, somewhat less readily in nitromethane, chloro-
1/2

USSR

GATILOV, YU. F., et al., Zhurnal Obshchey Khimii, Vol 42(104), No 7, Jul 72, pp 1535-1537

form, carbon tetrachloride and benzene, and are insoluble in ether. The compounds are optically unstable and racemise in the presence of trace quantities of moisture.

2/2

USSR

UDC 547.242

GATILOV, Yu. F., IONOV, L. B., and GAVRILOV, V. M., Kazan' Pedagogical
Institute

"Stereochemistry of Tertiary Arsine Oxides"

Leningrad, Zhurnal Obshchey Khimii, Vol 42(104), No 3, Mar 72, pp 540-545

Abstract: Enantiomers of dialkylaryl- and alkyldiarylarsine oxides are
synthesized and studied. It is shown that the process of formation of
arsine oxides from arsines is accompanied by retention of the relative
configuration; inversion is observed when arsine sulfides are converted
to arsine oxides. Racemization of arsine oxides is studied, and it is
found that the rate of racemization increases with solvents in the follow-
ing order: benzene-chloroform-nitromethane.

1/1

GATILOV, Yu. F., and IONOV, L. B., Kazan' Pedagogical Institute

"Synthesis and Properties of Secondary Halogenated Arsines and Their Deriva-
tives"

Abstract: A new synthetic method for secondary halogenated arsines (I) was
developed. It consists of three steps. Diethylamine was slowly added to
ice-cooled phenyldichloroarsine to yield, after three hours on a steam bath,
phenyl (diethylamino) chloroarsine. The latter was added to propylmagnesium
bromide in ethyl ether to give, after two hours on a steam bath, phenyl-
propyl (diethylamino) arsine, which, when hydrolysed with hydrochloric acid,
yielded 53.2% phenylpropylchloroarsine. Phenylethyl-, phenylbutyl-, and
benzylethylchloroarsines were similarly prepared. All synthesized I are
liquids, easily hydrolysed. Adding I under an inert gas to a cool solution
of an appropriate Grignard reagent in ethyl ether gave, after several hours
at room temperature, tertiary aryl-propylalkyl substituted arsines (yields
65.3-86.5%), previously unknown.

1/1

GATILOV, Yu. F., IONOV, L. B., and YAMBUSHEV, F. D., Kazan' State Pedagogical
Institute

"Effect of the Substituents in an Aromatic Nucleus on the Optical Activity of
Alkyldiarylarsines"

Abstract: Novel tertiary arsines were synthesized and separated into optical
isomers by optically active quinine. To a solution of 39 g potassium per-
manganate in 500 ml water, 25 g of ethylphenyl-m-tolylarsine was added and
heated for 20 hrs at 90°. To the solution 2 ml alcohol was added, the solu-
tion was filtered, and the filtrate acidified. The crude oxide was then
reduced with SO_2 for 2 hours to yield racemic ethylphenyl-m-carboxyphenyl-
arsine, m.p. 121°. Pure optical isomers were obtained by treatment with
optically active quinine. It was shown that introduction of substituents
in the aromatic nucleus leads to lower optical activity.

1/1

Acc. Nr:
AP0049128

Abstracting Service:
CHEMICAL ABST. 5-78

Ref. Code:
4R0079

100846k **Synthesis and properties of secondary halo-substituted arsines and their derivatives.** Gatilov, Yu. F.; Ionov, L. B. (Kazan. Pedagog. Inst., Kazan, USSR). Zh. Obshch. Khim. 1970, 40(1), 140-2 (Russ). To 54 g $PhAsCl_2$ was added with ice cooling 17.7 g Et_2NH to yield, after 3 hr on a steam bath, 58.1% $PhAs(NEt_2)Cl$, b_2 102°, which (24 g) added to $PrMgBr$, from 2.66 g Mg in Et_2O, and refluxed 2 hr gave 12.4 g 53.2% $PhPrAsCl$, b_{10} 125°, d^{20} 1.3316, n_D^{20} 1.5790, from facile hydrolysis of $PhPrAsNEt_2$. Similarly were obtained RPhAsCl (R shown): Et, 67.5%, b_{10} 110°, 1.3593, 1.5875; Bu, 61.3%, b_{10} 139°, 1.2881, 1.5705; MeC_6H_4, 59.7%, b_{10} 127°, 1.3232, 1.5840. Addg. 8.3 g PhPrAsCl to BuMgBr from 1.67 g Mg in Et_2O gave, after several hr at room temp., 84.5% PhPrAsR (R = Bu), b_{10} 136-7°, 1.0971, 1.5371. Similarly were prepd. the analogs (R shown): Et, 83.5, b_{10} 108-9°, 1.1414, 1.5493; Pr, 80.6%, b_{10} 124-5°, 1.1187, 1.5438; amyl, 82.3%, b_{10} 148-9°, 1.0849, 1.5342. Also reported were MeC_6H_4AsPrR: Et, 72.4%, b_{10} 122-3°, 1.1192, 1.5443; Pr, 84%, b_{10} 138-9°, 1.0977, 1.5375; Bu, 86.5%, b_{10} 154-5°, 1.0869, 1.5357; Am, 65%, b_{10} 165-6°, 1.0671, 1.5283. All reactions were run under CO_2. The tertiary arsines shown above were thus prepd. without recourse to organolead compds. $RR'AsCl$ shown above were hydrolyzed by H_2O and the atomic refraction of As in them was 11.9, i.e. typical of As(III) compds.   G. M. Kosolapoff

REEL/FRAME

19800934

7 du

USSR   UDC 621.317.33-96+535.215.12

IONOV, L. N.

"Measurement of the Vector Admittance of Semiconductors at Superhigh Fre-
quencies"

Moscow, Pribory i Tekhnika Eksperimenta, No 4, Jul/Aug 71, pp 157-160

Abstract: The author describes an installation for studying the electrical
and photoelectric properties of semiconductors on a frequency of approximately
10 GHz. The installation can be used to measure the dark conduction, per-
mittivity, photoconductivity, photodielectric effect, and their dependence
on temperature and on the nature of the ambient medium. The measurements are
done by a resonator method with the working resonator connected in a waveguide
channel in a feed-through circuit. In studying dark conduction, the Q of the
resonator containing the specimen is measured by a modulation-phase method.
The dark conduction may be measured in the range of $1-10^{-7}$ $\Omega^{-1} \cdot cm^{-1}$. The
photoconductivity and photodielectric effect are measured simultaneously in
two separate channels. The specimens may be exposed to intermittent and con-
tinuous light. The conditions for temperature measurements of photoconductivity
and photodielectric effect are determined. The author thanks I. A. Akimov and
A. M. Meshkov for discussion and constructive criticism.
1/1

- 62 -

Acc. Nr: AP0047637   Abstracting Service: Ref. Code:
                      — CHEMICAL ABST. 5-70   UR 0057

104323k   Reaction of oxygen and carbon monoxide with tungsten. Ionov, N. I.; Kutsenko, E. N. (Fiz.-Tekh. Inst. im. Ioffe, Leningrad, USSR). *Zh. Tekh. Fiz.* 1970, 40(2), 398–402 (Russ). The method of desorption of ions by slow electrons was used with simultaneous recording of the gas pressure to study the interaction of O and CO with W between 300 and 1700°K. The method is described by (V. N. Ageev and E. N. Kutsenko, 1969). The relative change in P_{O_2} in the device was detd. by the value of the ionic current of O_2^+ obtained by the ionization with the aid of an electron beam. The adsorbent was a W band 40 × 1.5 × 0.01 mm. At 700–900°K O penetrated into the W lattice to form of oxide structures. The O was desorbed at 1200–1500°K. A considerable effect of CO adsorbed in the β-state (desorption temp. 1000–1100°K) on the interaction of W with O and on the efficiency of the desorption of O^+ by electrons was obsd. In combined and consecutive absorption of CO and O_2 the efficiency of desorption cannot be obtained by addn. of the values of each of the adsorbates on pure W. It is assumed that O adsorbed on W-CO forms new chem. bonds to that the probability of neutralization of the ions that are formed on the surface by slow electrons decreases.   L. Holl

REEL/FRAME
19791209

TITLE--ELECTRON STRUCTURE AND NUCLEAR MAGNETIC RESONANCE SPECTRA. III.
   CORRELATION OF CHEMICAL DISPLACEMENT WITH SOME PHYSICAL PROPERTIES IN R

AUTHOR-(02)-IGNOVA, G.V., IONOV, S.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 9-12

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ELECTRON STRUCTURE, NMR SPECTRUM, MOLECULAR ORBITAL, ELECTRON
   SPECTRUM, MAGNETIC SUSCEPTIBILITY, CRITICAL TEMPERATURE, SURFACE
   TENSION, IONIZATION POTENTIAL, EXCITATION ENERGY, HALOGENATED ORGANIC
   COMPOUND, METHYLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0499   STEP NO--UR/0076/70/044/001/0009/0012

CIRC ACCESSION NO--AP0107104
                           UNCLASSIFIED

CIRC ACCESSION NO--AP0107104

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEVIATIONS OF THE CHEM. SHIFTS
OF COMPDS. TYPE R SUBX CR PRIME SUB4-X, WHERE R, R PRIME ARE H, F, CL,
BR, I, AND ME, FROM THE ADDITIVITY (DEPENDENT ON X) HAVE A SIMILAR
CHARACTER AS THAT OF AV. EXCITATION ENERGIES. THE EXCITATION ENERGIES
FOR THE EXAMD. SET WERE OBTAINED BOTH FROM THE ELECTRONIC SPECTRA AND
FROM MO CALCNS. ANALOGOUS BEHAVIOR ARE EXHIBITED BY MAGNETIC
SUSCEPTIBILITY, POLARIZABILITY, B.P., CRIT. TEMP., SURFACE TENSION, AND
IONIZATION POTENTIAL.

UNCLASSIFIED

1/2   015   UNCLASSIFIED   PROCESSING DATE--23OCT70
TITLE--REDISTRIBUTION OF ELECTRON DENSITY ON ATOMIC CENTERS IN UNSTABLE
  CYCLIC MOLECULAR SYSTEMS UNDER THE INFLUENCE OF LOCAL PERTURBATIONS -U-
AUTHOR-(02)-IONOV, S.P., IONOVA, G.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 270-1

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON DENSITY, ELECTRON TRIPLET STATE, BENZENE DERIVATIVE,
  EPR SPECTRUM, CYCLIC GROUP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1264   STEP NO--UR/0076/70/044/001/0270/0271

CIRC ACCESSION NO--AP0116726
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0116726
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR A MONOTONIC CHANGE IN A CONST.
   PERTURBATION, I.E. THE SUCCESSIVE EXCHANGE OF ONE SUBSTITUENT BY
   ANOTHER, THE ELECTRON D. DISTRIBUTION FOR A TRANS ATOM VARIES
   NONMONOTONICALLY.   THE BEHAVIOR OF THE SPIN D. IN A TRIPLET STATE IS
   DISCUSSED FOR MONOSUBSTITUTED BENZENE DERIVS. IN WHICH THE PERTURBATION
   IS A HETEROATOM OR SUBSTITUENT, THAT DOES NOT FORM A PI BOND WITH THE
   RING.   THIS EFFECT CAN BE CONFIRMED QUANT. BY EPR SPECTRA, AND THE
   EFFECT IS USEFUL IN STUDIES OF THE MOLS. CONFORMATION.   FACILITY:
   INST. NOV. PROBL., CHERNOGOLOVKA, USSR.

UNCLASSIFIED

USSR   UDC: 621.374.44

IONOV, V. N.

"A Frequency Multiplier Based on Varicaps"

Dokl. Nauchno-tekhn. seminara "Metrologiya v radioelektronike". Tezisy. Ch. 2
(Reports of the Scientific and Technical Seminar on Metrology in Radio Electronics.
Summaries. Part 2), Moscow, 1970, pp 41-46 (from RZh-Radiotekhnika, No 6, Jun 70,
Abstract No 6D31)

Translation: The author describes a multistage frequency multiplier for the
51-1836 MHz range. Bibliography of five titles. N. S.

1/1

TITLE--ELECTRON STRUCTURE AND NUCLEAR MAGNETIC RESONANCE SPECTRA. III.
   CORRELATION OF CHEMICAL DISPLACEMENT WITH SOME PHYSICAL PROPERTIES IN R

AUTHOR-(02)-IGNOVA, G.V., IONOV, S.P.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 9-12

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--ELECTRON STRUCTURE, NMR SPECTRUM, MOLECULAR ORBITAL, ELECTRON
   SPECTRUM, MAGNETIC SUSCEPTIBILITY, CRITICAL TEMPERATURE, SURFACE
   TENSION, IONIZATION POTENTIAL, EXCITATION ENERGY, HALOGENATED ORGANIC
   COMPOUND, METHYLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/0499   STEP NO--UR/0076/70/044/001/0009/0012

CIRC ACCESSION NO--AP0107104
                           UNCLASSIFIED

CIRC ACCESSION NO--AP0107104
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DEVIATIONS OF THE CHEM. SHIFTS
 OF COMPDS. TYPE R SUBX CR PRIME SUB4-X, WHERE R, R PRIME ARE H, F, CL,
 BR, I, AND ME, FROM THE ADDITIVITY (DEPENDENT ON X) HAVE A SIMILAR
 CHARACTER AS THAT OF AV. EXCITATION ENERGIES. THE EXCITATION ENERGIES
 FOR THE EXAMD. SET WERE OBTAINED BOTH FROM THE ELECTRONIC SPECTRA AND
 FROM MO CALCNS. ANALOGOUS BEHAVIOR ARE EXHIBITED BY MAGNETIC
 SUSCEPTIBILITY, POLARIZABILITY, B.P., CRIT. TEMP., SURFACE TENSION, AND
 IONIZATION POTENTIAL.

UNCLASSIFIED

TITLE--REDISTRIBUTION OF ELECTRON DENSITY ON ATOMIC CENTERS IN UNSTABLE
   CYCLIC MOLECULAR SYSTEMS UNDER THE INFLUENCE OF LOCAL PERTURBATIONS -U-

AUTHOR-(02)-IONOV, S.P., IONOVA, G.V.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 270-1

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTRON DENSITY, ELECTRON TRIPLET STATE, BENZENE DERIVATIVE,
   EPR SPECTRUM, CYCLIC GROUP

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/1264   STEP NO--UR/0076/70/044/001/0270/0271

CIRC ACCESSION NO--AP0116726
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0116726
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FOR A MONOTONIC CHANGE IN A CONST.
  PERTURBATION, I.E. THE SUCCESSIVE EXCHANGE OF ONE SUBSTITUENT BY
  ANOTHER, THE ELECTRON D. DISTRIBUTION FOR A TRANS ATOM VARIES
  NONMONOTONICALLY.   THE BEHAVIOR OF THE SPIN D. IN A TRIPLET STATE IS
  DISCUSSED FOR MONOSUBSTITUTED BENZENE DERIVS. IN WHICH THE PERTURBATION
  IS A HETEROATOM OR SUBSTITUENT, THAT DOES NOT FORM A PI BOND WITH THE
  RING.   THIS EFFECT CAN BE CONFIRMED QUANT. BY EPR SPECTRA, AND THE
  EFFECT IS USEFUL IN STUDIES OF THE MOLS. CONFORMATION.   FACILITY:
  INST. NOV. PROBL., CHERNOGOLOVKA, USSR.

UNCLASSIFIED

1/2   029
TITLE--CHROMIUM PLATING IN A PERCHLORATE ELECTROLYTE -U-   UNCLASSIFIED   PROCESSING DATE--23OCT70

AUTHOR-(02)-FALICHEVA, A.I., IONOVA, I.G.

COUNTRY OF INFO--USSR

SOURCE--ZASHCH. METAL. 1970, 6(2), 191-5

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHROMIUM PLATING, PERCHLORATE, ELECTROLYTE, CATHODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1910   STEP NO--UR/0365/70/006/002/0191/0195

CIRC ACCESSION NO--AP0118872
                    UNCLASSIFIED

CIRC ACCESSION NO--AP0118872
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE FOLLOWING PROBLEMS WERE
  STUDIED IN THE INVESTIGATION OF CR PLATING ON A CU, NI, AND STEEL
  CATHODES IN CR(CLO SUB4) SUB3 SOLN. WITH (NH SUB4) SUB2 CO SUB3 AND HCL
  AS PH REGULATORS: BUFFERING CAPACITY, SURFACE TENSION, SPECTRA OF LIGHT
  ABSORPTION, PH OF THE NEAR CATHODE LAYER, AND STABILITY OF THE
  PERCHLORATE ELECTROLYTE. ALSO THE EFFECTS OF CATHODE C.D., ACITITY,
  TEMP., AND QUALITY OF CR PLATINGS WERE EXAMD. THE BEST CR DEPOSITS WERE
  OBTAINED AT CATHODE C.DS. OF 20-30 A-OM PRIME2, PH 0.65 PLUS OR MINUS
  0.05, AND TEMP.20-25DEGREES ADDNS. OF UREA (2M), NH SUB4 BF SUB4 (0.3M),
  AND ALPHA,ALANINE (0.5 G-1.) INCREASE THE BUFFERING CAPACITY OF
  ELECTROLYTE OVER A WIDE RANGE OF PH AND CURTAILS THE FORMATION OF SOLID
  PHASE CR(OH) SUB3.   FACILITY: VORONEZH. POLITEKH. INST., VORONEZH,
  USSR.

USSR

UDC 543.423:621.385

ANDREYEV, Yu. P., IONOVA, L. S., and KAYGORODOV, V. A.

"Investigating Deposits on Electrodes and Envelopes of Pulse Tubes"

Minsk, Zhurnal Prikladnoy Spektroskopii, Vol 13, No 2, Aug 70, pp 204-207

Abstract: The object of this paper is to investigate the chemical composition of the deposits formed on electrodes and envelopes in gas-discharge tubes. The investigation consisted in the spectral analysis of the tube's composition and a comparison of the results obtained with the spectra produced by burning the deposits formed on the tube components. The samples studied were placed in a graphite cup in which a vacuum of 0.1 mm Hg was maintained. By passing a current of 200-300 a the cup was heated to 1000-2000 C. As a result of heating, the highly volatile admixture from the base metal was evaporated and deposited on the graphite electrode positioned above the cup with the sample. The burning of the deposited material made it possible to determine its chemical composition. The results obtained show that the chemical composition of the deposits is independent of the shape of the tube envelope and the discharge power. W, Si, Ni, and Ba were the principal elements deposited on the cathode and adjacent area; and Mo, W, and Si, on the anode and adjacent area.

1/1

1/3   022   UNCLASSIFIED   PROCESSING DATE--02OCT70
TITLE--MECHANISM OF THE DIENE SYNTHESIS WITH 5,ALKOXYOXAZOLES -U-

AUTHOR-(05)-DROBINSKAYA, N.A., IONOVA, L.V., KARPEISKIY, M.YA., PADYUKOVA,
N.SH., TURCHIN, K.F.
COUNTRY OF INFO--USSR

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (1), 37-42

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MOLECULAR STRUCTURE, CONDENSATION REACTION, ORGANIC AZOLE
COMPOUND, CHEMICAL SYNTHESIS, ISOMERIZATION, PYRIDINE, CHEMICAL REACTION
MECHANISM, ACETYLENE, ELECTRON DENSITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1986/1368   STEP NO--UR/0409/70/000/001/0037/0042
CIRC ACCESSION NO--AP0103222
                         UNCLASSIFIED

CIRC ACCESSION NO--AP0103222
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HETERODIENE CONDENSATION OF 5,
  ALKOXYOXAZOLES TAKES PLACE IN TWO STAGES: REACTION OF OXAZOLES WITH
  DIENOPHILES GIVING UNSTABLE ADDUCTS, AND ISOMERIZATION OF THESE ADDUCTS
  TO SUBSTITUTED 3,HYDROXYPYRIDINES. THUS, ET BETA, ACETYLACRYLATE (I)
  REACTS WITH 4,METHYL,5,ETHOXYOXAZOLE (II) TO GIVE
  2,METHYL,3,HYDROXY,4,ACETYL,5,CARBETHOXYPYRIDINE (III) THROUGH THE
  UNSTABLE ADDUCT IIIA. THIS MECHANISM IS SUPPORTED BY PI ELECTRON
  DENSITY CALCNS. FOR I AND II, ACTUAL ISOLATION OF III AS THEIR MAIN
  REACTION PRODUCT, ITS CHEM. CONVERSION, AND FINALLY BY PMA AND IR
  STUDIES. REACTIONS BETWEEN II AND BETA,ACETYLACRYLIC ACID (GIVING
  2,METHYL,3,HYDROXY,5, ACETYLPYRIDINE) (IV), AND BETWEEN I AND
  CYCLOPENTEN,3,ONE (FORMING 5,METHYL,4,HYDROXY, 6,AZAHYDRINDEN,3,ONE) (V)
  ALSO VERIFIED THIS TYPE OF MECHANISM. THUS, TO A SOLN. OF 17.9 G I IN
  20 ML ABS. ET SUB2 O WAS ADDED 8.87 G II, 1 ML ACOH, AND 200 MG
  HYDROQUINONE, AND THE SOLN. KEPT 1 WEEK AT ROOM TEMP. IN THE DARK TO
  GIVE 8 G III, M. 151-2DEGREES (HEPTANE). A SOLN. OF 2.5 G II AND 3.42 G
  BETA,ACETYLACRYLIC ACID IN 40 ML ABS. ET SUB2 O WAS KEPT 5 DAYS UNDER A
  CACL SUP2 TUBE TO GIVE 0.64 G IV, M. 253-4DEGREES (DECOMPN.) (MEOH). TO
  A SUSPENSION OF 1.14 G LIALH SUB4 IN 50 ML THF WAS ADDED DROPWISE WITH
  COOLING 2.1 G III IN 50 ML THF, AND THE MIXT. REFLUXED 6 HR AND LEFT
  OVERNIGHT AT ROOM TEMP. TO GIVE 1.74 G
  2,METHYL,3,HYDROXY,4,(ALPHA,HYDROXYETHYL), 5,HYDROXYMETHYLPYRIDINE, M.
  172-3DEGREES (ETOH-ET SUB2 O).

3/3   022

CIRC ACCESSION NO--AP0103222   UNCLASSIFIED   PROCESSING DATE--02OCT70

ABSTRACT/EXTRACT--A MIXT. OF 0.8 G CYCLOPENTEN,3,ONE, 0.63 G II, AND 0.1 G
PYROGALLOL WAS HEATED 2 HR AT 110DEGREES, COOLED, TREATED WITH 1 ML
25PERCENT DRY HCL IN ETOH, CAREFULLY SHAKEN WITH 70 ML ABS. ET SUB2 O,
AND LEFT OVERNIGHT IN A REFRIGERATOR TO GIVE 0.22 G V, M. LARGER THAN
170DEGREES (ETOH-ET SUB2 O).

UNCLASSIFIED

USSR

UDC 536.46:533.6

PODES, O. M., GOL'TSIKER, A. D., GORBUL'SKIY, Ya. G., IONUSHAE, K. K.

"On the Propagation of a Plane Flame Front in Aerodisperse Systems"

V sb. Goreniye i vzryv (Combustion and Explosion -- Collection of Works),
Moscow, "Nauka", 1972, pp 166-170 (from RZh-Mekhanika, No 3, Mar 73, Abstract
No 3B964)

Translation: The technique for calculating the propagation velocity of the
standing flame front in aerodisperse systems was developed from the studies of
Nusselt and Esseng. Radiant flow from the flame front heats the aerosuspension
located ahead of it up to its combustion temperature under conditions that ensure
the possibility of steady-state propagation of the front with velocities from
meters up to tens of meters per second. The possibility of the inhibition of
flame propagation in the aerosuspension was analyzed theoretically and supported
experimentally. 5 ref. Authors' abstract.

1/1

USSR

TODES, O. M., IONUSHAS, K. K., GOL'TSIKER, A. D., and ABDURAGIMOV, I. M.

"Investigating the Inhibition of Flame Propagation in Air-Dispersed Systems"

Abstract: This paper is the follow-up of an earlier article (O. M. Todes, et al, Tretiy Vses. simpozium po goreniyu i vzryvu, Author's abstract, Chernogolovka, 1971) which developed a theory of the propagation of flames in air-dispersed media due to heat radiation transmission. The present paper considers the principal consequences of this theory, important in the study of the effectiveness of inhibiting the flames for the simplest case in which the radiative front is deep and its frontal limit can be considered a plane. Experiments are described to determine the speeds of the propagation and to compare them, in their order of magnitude, with those specified by the theory; a diagram of the equipment is given with the method of the experiment. The results of the latter confirm the assumption of heat radiation as the means of propagation and demonstrate the effectiveness of flame inhibition by halide hydrocarbons.
1/1

Materials

USSR

ANDRIANOV, D. G., BRANDT, N. B., IOON, E. R., FISTUL', V. M., and ChUDINOV, S. M.

"A New Commutation Effect in InSb"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 17, No 9, 5 May 73, pp 494 - 498

Abstract: Detailed studies of Shubnikov-de Gaaz oscillations in M-type InSb monocrystals alloyed with Te at 10^{18} cm^{-3} indicate a commutation effect for a narrow range of carrier concentrations. Within this range a reversal of magnetic field direction with respect to electric current direction at low temperatures produces a qualitative change in the nature of oscillatory relationships. The nature and strength of the effect are dependent on the plane orientation of the crystal with respect to the magnetic field (which is always perpendicular to the electric current).

    The phenomenon can be explained by postulating quasi-localized magnetic moments related to some virtual (resonant) levels, which cause changes in the law of dispersion in the conductivity zone of InSb in the neighboring energy region. The passage of a Fermi level (due to alloying or the effect of external pressure) through these resonance levels is accompanied by: a) their virtual saturation and the development of quasi-localized magnetic moments; b) a maximum
1/2

USSR

ANDRIANOV, D. G., et al., Moscow, Pis ma v Zhurnal Eksperimental'noy i
Teoreticheskoy Fiziki, Vol 17, No 9, 5 May 73, pp 494 - 498

of the exchange interaction of the quasi-localized moments through electron
conductivity at the Fermi level, leading to the development of long range
magnetic order and the formation of an intracrystalline field.

2/2

Abstract: The oscillations of the magnetoresistance of n-type GaAs doped with Te are studied in the interval of concentrations n_H of electrons from $0.93 \cdot 10^{18}$ to $2.75 \cdot 10^{10}$ cm^{-3} in magnetic fields to 70 kilooersted at temperatures of $1.9 \pm 4.2^\circ$ K. Anisotropy of the isoenergetic surface at a point Γ of the Brillouin zone is revealed, increasing with an increase of the concentration of electrons. With $n_H = 2.75 \cdot 10^{18}$ cm^{-3} the relative anisotropy of the extremal cross-sections of the isoenergetic surface amounts to ~ 2 percent. A break is observed in the dependences of the number of Landau levels on the magnitude of the reversed magnetic field, which is interpreted as a consequence of the two-sheeted structure of the isoenergetic surface at a point Γ and of the intraband magnetic breakdown between the two cross-sections of this surface which are similar with respect to area. The Dingler temperature, the cyclotron masses, the Hall mobility, and the Dingler mobility are determined. State Scientific-Research And Planning Institute Of The Rare Metal Industry, Moscow (Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut redkometallicheskoy promyshlennosti, Moskva); Moscow State University imeni M.V. Lomonosova. Received by editors 31 March 1971. 6 fig. 2 tab. 11 ref.
1/1

USSR

UDC 632.95

REVEL'SKIY, I. A., IOONSON, V. A., IL'MOYA, K. A., BELOV, V. M., KARAVAYEVA,
V. G., LOOG, E. P., SOVAKOVA, T. M.

"The Sensitivity of a Flame-Photometric Detector to Certain Pesticides as a
Function of Temperature"

Tr. 2-go Vses. soveshch. po issled. ostatkov pestitsidov i profilakt. zagryaz-
neniya imi produktov pitaniya, kornov i vnesh. sredy (Works of the Second All-
Union Conference on the Investigation of Pesticide Residues and Preventive
Contamination of Food Products, Fodder and Environment), Tallin, 1971, pp 102-
107 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12N448)

Translation: On a chromatograph of the Melpar Company, a Study was made of
the behavior of a single and double-channel flame photometric detector as a
function of the temperature of the detector and the thermostat of the columns.
The separation of the artificial mixture of pesticides is carried out in a
glass column 2 meters long with an inside diameter of 4 mm filled with NR
chromosorb with a 3% phase of OV-I. The column was heated for 50 hours in ad-
vance at 250°. The evaporator temperature was 250°, the thermostat tempera-
ture of the columns and the detector was 75-220°. The flow rates of H2 (the
gas-carrier), H_2O_2 and air are 80, 150, 20 and 10 cm3/min respectively. In
checking the sensitivity of the flame photometric detector, a mixture of methyl
parathion, parathion, methylthion and ethion in hexane was used. The amount

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USSR

REVEL'SKIY, I. A., et al., Tr. 2-go Vses. soveshch. po issled. ostatkov pes-
titsidov i profilakt. zagryazneniya imi produktov pitaniya, kormov i vnesh.
sredv, Tallin, 1971, pp 102-107

of each component was 10^{-9} in a microliter of solution. For a decrease in
background current and the noise level it was necessary to operate at low
temperatures of the flame-photometric detector (but not less than $80-100°$
to avoid condensation of moisture), or with additional cooling of the photo-
multiplier and filter. It is expedient to study the dependence of the back-
ground current and noise level for each new column. The phosphorus channel
is more sensitive than the sulfur channel to temperature variations of the
detector and columns. The background current and noise level for it are ~10
times higher than for the sulfur channel. For the two-channel flame photo-
metric detector, the background current and noise level as functions of the
column temperature were somewhat greater than for the single channel, and as
functions of the detector temperature, somewhat less. The basic deficiencies
of the investigated flame photometric detector are as follows: the filters and
photomultipliers are under the effect of the detector housing temperature; as
a result of internal reflections of light, variation in the parameters is ob-
served on transition to operation with a two-channel detector. The detector
developed at the Special Design Office of the Estonian SSR Academy of Sciences
does not have these deficiencies.
2/2

UDC 632.95

USSR

REVEL'SKIY, I. A., IOONSON, V. A., IL'MOYA, K. A., KARAVAYEVA, V. G., LOOG, E. P., SIROTA, T. S.

"Sensitivity of Flame Photometric Detector for Phosphorus-Containing Pesticides as a Function of the Experimental Parameters"

Translation: In studying the dependence of the sensitivity of the two-channel flame-photometric detector to phosphorus-containing pesticides on the experimental parameters, a solution of triethyl phosphate (I) in alcohol is used. The optimal O_2 flow rate (20-40 cm^3/min), H_2 and H_2 flow rates were found from the point of view of sensitivity of the two-channel flame photometric detector. For an amount of I on the order of 10^{-7} grams, the signal of the phosphorus channel exceeds the signal of the sulfur channel approximately 400 fold.

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USSR

CHIKVAIDZE, V. N., IORDANISHVILI, G. S., and SOBCHINSKAYA, N. M., Institute
of Physiology, Georgian Academy of Sciences

"Effect of Neurotropic Agents on Monoamine Oxidase and 5-Hydroxytryptophan
Carboxylase Activities in Brain Tissue"

Abstract: In acute experiments on rats, chlorpromazine, melipramine, nardil,
reserpine, haloperidol, and iprazid inhabited monoamine oxidase activity in
brain tissue in varying degrees, while benactizine slightly stimulated it.
The results were the same in chronic experiments, but the inhibitory effect
of the neurotropic agents was more pronounced. In both acute and chronic
experiments, chlorpromazine and nardil strongly inhibited 5-hydroxytryptophane
carboxylase activity, while reserpine stimulated it. Benactizine and melipra-
mine inhibited the enzyme in chronic and acute experiments, respectively.
Haloperidol had no effect. Thus, the drugs tested have a selective effect
on monoamine oxidase and 5-hydroxytryptophane carboxylase activities in brain
tissue. Some inhibit both enzymes; others stimulate one and inhibit the
other.

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USSR   UDC 669.71.053.24(088.8)

KHITRIK, S. I., GASIK, M. I., VUKOLOV, YE. A., KLIMKOVICH, N. A.,
PORADA, A. N., LAGUNOV, YU. V., POLONSKIY, S. M., IORDANOVA,
Z. A., MALYSHEV, V. I., YEMLIN, B. I., KASHKUL', V. V., PASHKOV,
V. P. TSEYMAKH, N. L., YEM, A. P., CHERNYSH, F. I., and KOLMOGU-
ZENKO, V. A., Dnepropetrovsk Metallurgical Institute

"Method of Smelting Abrasive Electrolytically Produced Corundum"

Translation: A method is proposed for smelting abrasive elec-
trolytically produced corundum in a thermal furnace which involves
deep fusion of alumina-containing charge with reducing agents.
To increase the abrasive properties of corundum and to obtain
in it a Ti oxide content of $< 1\%$, smelting is carried out on
kaolin presintered with Fe-ore additive or scale in the amount
of 20-30 wt % of the charge.

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USSR

VOLKOV, N. I., IORDANSKAYA, E. A., and MATVEYEVA, E. A., Candidates of Biological Sciences, State Central Order of Lenin Institute of Physical Culture and All Union Scientific Research Institute of Physical Culture

"Change in Work Capacity of Athletes Under Conditions of Medium-Sized Mountains"

Moscow, Teoriya i Praktika Fizicheskoy Kul'tury, No 7, 1970, pp 43-48

Abstract: A study was made of the work capacity of 16 long-distance runners, bicyclists, and rowers on the Soviet Olympic team who participated in the 1968 games to check on the effectiveness of the training methods employed. Each athlete was examined three times: (1) in Moscow (at sea level) shortly before departing for Mexico, (2) the first week in Mexico City, and (3) the third week in Mexico City. All were tested on a bicycle ergometer and various physiological indices recorded - heart rate, level of oxygen consumption, blood pressure, and so forth. The results indicated that the main factor responsible for the initial decline in work capacity is the decrease in aerobic capacity. During the first week or period of "acute" acclimatization in Mexico City, the maximum aerobic capacity of the athletes was
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USSR

VOLKOV, N. I., et al, Teoriya i Praktika Fizicheskoy Kul'tury, No 7, 1960, pp 43-48

found to decrease by 19.5% on the average. After two weeks of training the decrease in maximum O_2 consumption was 14%, a value that closely correlated with the maximum time of pedaling on the bicycle ergometer.

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USSR

UDC: 8.74

IORDANSKIY, M. A.

"Concerning Some Problems in Computer Analysis of Control System Circuits"

Moscow, Izbr. tr. Vses. mezhvuz. simpoz. po prikl. mat. i kibernet., Gor'kiy, 1967 (Selected Works of the All-Union Intercollegiate Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967), "Nauka", 1973, pp 301-304 (from RZh-Kibernetika, No 7, Jul 73, abstract No 7V588 by the author)

Translation: The paper deals with solution of the following problems: 1) analysis of a system of circuit elements; circuits are represented via elements which realize different elementary logic or auxiliary functions; the statistical laws which govern use of these elements in the circuits are considered; 2) analysis of element hookups in circuits; the degree of unification of the circuit hookups is estimated, and the problem of selecting circuit modules is examined.

1/1

USSR

UDC: 8.74

VINOGRADOV, Yu. A., IORDANSKIY, M. A.

"Machine Analysis of Computer Circuits"

V sb. Probl. kibernetiki (Problems of Cybernetics--collection of works),
vyp. 24, Moscow, "Nauka", 1971, pp 147-160 (from RZh-Kibernetika, No 4,
Apr 72, Abstract No 4V520)

Translation: An attempt is made to bring the engineering and mathematical
approaches to synthesis of large discretely functioning systems closer to-
gether. Taking finished engineering structures as an example (four com-
puter circuits), light is shed on the peculiarities of engineering models,
and an evaluation is made of the success of engineering methods of syn-
thesis, trends in synthesis, etc. Authors' abstract.

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TITLE--SEPARATION OF THE HYDROCARBON PORTION OF THE OIL FRACTION OF
   KHAEDRPISSITE THERMOPLASTICIZER EXTRACT FROM NONHYDROCARBON COMPOUNDS

AUTHOR-(03)-TSISKARISHVILI, P.D., IOSAVA, I.G., GELASHVILI, N.S.

COUNTRY OF INFO--USSR

SOURCE--SOOBSHCH. AKAD. NAUK GRUZ. SSR 1970, 57 (2), 337-40.

DATE PUBLISHED------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--PETROLEUM PRODUCT, CRUDE OIL, AROMATIC HYDROCARBON,
   SPECTROPHOTOMETRIC ANALYSIS, UV SPECTRUM, CHROMATOGRAPHIC ANALYSIS,
   PLASTICIZER, THERMOPLASTIC MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/1307   STEP NO--UR/0251/70/057/002/0337/0340

CIRC ACCESSION NO--AP0134401

UNCLASSIFIED

CIRC ACCESSION NO--APC134931
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OIL FRACTION OF KHASSOPISSITE
   THERMOPLASTICIZER EXT. (N PRIME20 SUBD 1.556, HETEROCYCLIC ATOMS 4 WT.
   PERCENT, OR NO. 76, AND MOL. WT. 555) WAS SEPD. ON A SILICA GEL
   CHROMATOG. COLUMN AND THE RESULTING HYDROCARBON PART (C 87.59, H 12.37,
   NONHYDROCARBONS 0.04 WT. PERCENT, D PRIME20 SUB4 0.934, N PRIME20 SUBD
   1.539, AND MOL. WT. 574) WAS STUDIED BY USING VACUUM DISTN., BY HEATING
   AT 280-320DEGREES FOR 32 HR, AND BY SPECTROPHOTOMETRY IN THE UV REGION.
   THE HYDROCARBON PART INVESTIGATED CONSISTED OF PARAFFINS AND NAPHTHENES
   PLUS SMALL AMTS. OF AROMATIC COMPDS. MOST OF THE AROMATIC HYDROCARBONS
   IN THE OIL FRACTION WERE LOST DURING THE CHROMATOG. SEPN.
   FACILITY: INST. FIZ. ORG. KHIM. IM. PALIKISHVILI, TBILISI, USSR.

UNCLASSIFIED

TITLE--ELECTROBOLITES AND METABOLIC DISORDERS OF THE ACID BASE BALANCE OF
  THE BLOOD OF PATIENTS WITH MYOCARDIAL INFARCTION -U-

AUTHOR-(02)-IOSAVA, K.V., ANDRIADZE, N.A.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 4, PP 63-69

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, ALKALOSIS, HYPERKALEMIA, GLUCOSE, INSULIN,
  DIAGNOSTIC MEDICINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0561   STEP NO--UR/0504/70/042/004/0063/0069

CIRC ACCESSION NO--AP0108776
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0108776

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. THE CONDITION OF THE METABOLIC
  PROCESSES WAS STUDIED IN 38 PATIENTS WITH MYOCARDIAL INFARCTION FROM THE
  3D TO THE 20TH DAY FROM THE ONSET OF THE DISEASE. IT WAS FOUND THAT
  METABOLIC ALKOLOSIS WAS CLOSELY ASSOCIATED WITH POTASSIUM DEFICIENCY IN
  PATIENTS WITH MYOCARDIAL INFARCTION AND A SMALL HYPERPOTASSEMIA AND
  MODERATE METABOLIC ACIDOSIS DEVELOPED IN SOME OF THE PATIENTS WHO HAD
  BEEN GIVEN GLUCOSE, INSULIN AND POTASSIUM. THE AUTHORS RECOMMEND A
  DIFFERENTIAL APPROACH TO THERAPY OF PATIENTS WITH MYOCARDIAL INFARCTION
  WITH POTASSIUM SALTS ON THE BASIS OF CLINICAL DATA AND INVESTIGATION OF
  INTRARELATION BETWEEN THE ACID BASE AND ELECTROLYTE METABOLISM.
  FACILITY: 1,E KLINICHESKOYE OTDELENIYE INSTITUTA KARDIOLOGII IM. A. L.
  MYASNIKOVA AMN SSSR, MOSCOW.

UNCLASSIFIED

USSR

UDC 621.372.852.1(088.8)

IOSELEVICH, YA. SH., NEMCHINOVA, M. A.

"Procedure for Tuning Comb Filters"

USSR Author's Certificate No 259189, Filed 15 Mar 68, Published 28 Apr 70
(from RZh-Radiotekhnika, No 9, Sep 70, Abstract No 9B129P)

Translation: This author's certificate introduces a procedure for tuning
comb filters on connected lines by detuning all the resonators and subse-
quently tuning them successively to the mean frequency while controlling
the tuning process by an indicator. In order to improve the accuracy and
reliability of tuning, an automatic voltage standing wave ratio meter is
used. There are four illustrations.

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UDC: 51

USSR

IOSELIANI, A. N.

"On the Problem of Selecting a Strategy for One-Dimensional Search"

Tr. In-t sistem upr. AN GruzSSR (Works of the Institute of Control Systems, Academy of Sciences of the Georgian SSR), 1971, 10, No 1, pp 24-33 (from RZh-Kibernetika, No 5, May 72, Abstract No 5V467)

[No abstract]

1/1

USSR

ICSELIANI, K., Col Med Serv, Candidate of Medical Sciences, BELEDA, R., Col Med Serv

"The Self-Regulation of Sleep"

Moscow, Aviatsiya i Kosmonavtika, No 9, Sep 71, p 43

Translation: The piloting of contemporary aircraft demands of the flight crew a high degree of physical and nervous and psychological tension, and great resistance to the effect of unfavorable factors of professional activity. Obviously, the rational organization of the crew's work and rest is of primary importance. In the flight personnel's regimen of rest, an important role is played by sleep, during which the organism regenerates its forces most intensively.

Sleep constitutes a state of the organism when inhibition extends to the entire cerebral cortex and to the subcortical centers. A sleep of full value comes quickly, is profound, lasting, and uninterrupted.

Disturbances of sleep arise first of all on account of the disruption of the mobility and force of the processes of stimulation and inhibition. When these processes become less mobile, they can linger on for a long time

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USSR

IOSELIANI, K., Aviatsiya i Kosmonavtika, No 9, Sep 71, p 43

in given areas of the brain even after the need is gone. The nervous pro-
cess turns into a "stagnation focus" that hinders the organism in adapting
to new conditions, in this instance, to the process of falling asleep.
    The causes disturbing sleep can be extremely varied, but conditionally
they can be divided into two groups: those that depend on man himself, his
work, life, behavior, and the state of his organism and the ones determined
by the conditions of the environment.
    The main condition for normal sleep is a correct rhythm of life with
a judicious combination of mental and physical loads, active and varied
recreation, and engaging in sports. It is very important to go to bed and
get up at strictly established times, inasmuch as the accustomed time of
going to sleep, combined with certain conditions (darkness, quiet by itself
is conducive to sleep. It is better to get up an hour earlier than to
"drive away" sleep and go to bed later. One should not eat within 3 hours of
sleeping and 0.5-1 hour before sleep one should terminate one's activities
and if possible take a walk. Physical load (physical exercise) should be
excluded before sleep.
    The working conditions of the flight personnel are frequently accompanied
by substantial disruptions of the regimen of daily activity -- nighttime
and prolonged flights, and so on -- which may cause disturbances to sleep.
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ICSELIANI, K., Aviatsiya i Kosmonavtika, No 9, Sep 71, p 43

Under similar circumstances, it is not recommended to take sleep-inducing
medication to which the organism is not indifferent, but rather use the
method of self-training for falling asleep (active self-regulation) which has
become widespread in recent years. This method is based on the principle
of training the nervous processes of stimulation and inhibition, which leads
to an increased ability of man to regulate himself his own psychological state.
This method is based on the effect of muscular activity on the activity of the
internal organs and of the central nervous system, by a voluntary change in
the degree of tension of given groups of skeletal muscles and also by changing
the frequency and depth of respiration. In addition, premeditatedly and
purposefully, use is made of words in the form of certain verbal designations
and formulations with a voluntary change in the direction and concentration
of attention. The effectiveness of words and their influence on involuntary
processes are increased when the cerebral cortex is somewhat inhibited and
the person is in an intermediate state. The word formulas which are used for
the self-regulation of sleep are of sleep are divided into two groups: those
that induce a process of neuromuscular relaxation and those that give rise to
ideas that affect the emotional state.

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IOSELIANI, K., Aviatsiya i Kosmonavtika, No 9, Sep 71, p 43

In all this, the most important factors normalizing sleep are turning away from disturbing ideas, and fixing the attention on a monotonously repeated monotonous text and a state of quietness and rest.

The posture must be convenient and one usual for going to sleep. The set of techniques must be applied regularly, as much as possible at the same time before going to sleep. In the beginning, possibly, the entire text will have to be recited (and even to be repeated), but in time, sleep will come already at the first words.

An approximate full text for the normalization of sleep is as follows:

1. I am lying quietly . I feel comfortable and at ease. I am calm. I am comfortable. Time is passing slowly. My eyes are closing. Silence Quiet. Rest. I fell completely at rest... completely at rest.

2. The muscles of my right arm are relaxed. The muscles of my left arm are relaxed. My shoulders are relaxed and lowered. Both hands are relaxed. I fell the weight of my hands. I fell a pleasant warmth in my hands and in my finger-tips. I feel completely at rest.. completely at rest.

3. The muscles of my right leg are relaxed. The muscles of my left leg are relaxed. The muscles of my feet are relaxed. My feet are immobile and heavy. I feel a pleasant warmth in my soles and in my toes. I feel

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USSR

IOSELIANI, R., Aviatsiya i Kosmonavtika, No 9, Sep 71, p 43

completely at rest... completely at rest.
    4. My entire body is relaxed. The muscles of my back are relaxed.
The muscles of my belly are relaxed. I feel a heaviness in my entire body.
I feel a pleasant warmth over my entire body. I feel completely at rest...
completely at rest.
    5. The muscles of my face are relaxed. My eyebrows are in their normal
position. My forehead is smooth. My eyelids are lowered and gently closed.
The corners of my mouth are slack. The muscles of my mouth are relaxed.
My tongue is relaxed in my mouth. The muscles of my jaws are relaxed. I
feel a coolness on the skin of my forehead. My entire face is at rest and
relaxed.
    6. I am breathing quietly and evenly. I am breathing slowly and quietly.
My heart is beating evenly and rhythmically. It is completely calm. My
heart beats quietly and evenly. My entire body is relaxed. I feel a
pleasant warmth over my entire body. I feel completely at rest... completely
at rest.
    If the emotional stimulation is very strong and sleep is long in coming,
the text is repeated until the moment of falling asleep. While this is going
on, one should not think of sleep and try to summon it. Sleep comes
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USSR

IOSELIANI, R., Aviatsiya i Kosmonavtika, No 9, Sep 71, p 43

unnoticeably, and is caused not by the desire to sleep, but by relaxation
and drawing attention and thought away from disturbing topics.

6/6

IOSELIANI, K. K.

space medicine

SO: JPRS 53328
19 Jun 71

UDC [illegible]1.1-057:629.7

METHOD FOR STUDYING AN OPERATOR'S SENSOMOTOR ACTIVITY DURING PERCEPTION OF STIMULI IN A LARGE VISUAL FIELD

[Article by [redacted] Moscow, [illegible] Biologiya i Meditsina, Russian, Vol [illegible], No 1, [illegible], pp [illegible] (6), submitted for publication 1 June 1970]

Abstract: The procedure described in this paper can be considered a model of complicated sensomotor activity of a spacecraft pilot. While performing an experimental task at a very high speed the subject had to remember and record various [illegible] specific characteristics, correct the results, and [illegible] by pressing on the appropriate keys of a ten-key adding machine. The procedure has been tested and can be recommended as a method for the psychological screening of aircraft and spacecraft pilots.

[illegible] in [illegible] emergency situations during the piloting of flight craft of all types are caused by unexpected events and insufficient time for making a decision.

[illegible] the screening and expert examination of fliers [illegible] their psychological suitability for flight [illegible] is given to a study of complex sensomotor activity in the perception, [illegible] analysis of information which suddenly and unexpectedly appears at different points of the visual field, requiring of the flier [illegible] readiness (vigilance) for unexpected situations and for very precise and rapid actions ([illegible] Alyakrinskiy; F. D. Gorbov; F. D. Gorbov [illegible] Chaynova, and others).

In [illegible] one of the fundamental principles of [illegible] Soviet medical flight [illegible] principle (F. D. Gorbov and L. D. Chaynova, and others), that is, maximum experimental simulation of the conditions of [illegible] of the flier, especially its rapid

USSR   UDC 612-82

MANCPACHVILI, Z. I., and ICSELIANI, T. K., Institute of Physiology, Academy
of Sciences Georgian SSR

"Effect of Stimulation of the Mesencephalic Reticular Formation on Convulsive
Electrical Activity of the Brain"

Abstract: Stimulation of the dorsal hippocampus in cats evoked convulsive
activity chiefly in the stimulated region. Intensification of the stimula-
tion resulted in the discharges spreading to the ipsilateral ventral hippo-
campus, and then to other subcortical and neocortical structures. Preliminary
stimulation of the reticular formation inhibited afterdischarges. After 7-
-second stimulation of the reticular formation, stimulation of the dorsal
hippocampus failed to evoke convulsive waves in any of the structures recorded.
However, if the reticular formation was stimulated after convulsive activity
had been evoked, inhibition did not occur and the duration of the after-
discharge even increased slightly.

1/1

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USSR   UDC 621.317.39.088.2:536.53.533.915.1

IOSEL'SON, G. L.

"Sources of Errors in Measurement of Electron Temperature of a Plasma from
Its Thermal Radio-Frequency Radiation"

Tr. Khar'kov. NII Metrol. [Works of Khar'kov Scientific Research Institute
for Metrology], Moscow, 1970, pp 5-12, (Translated from Referativnyy
Zhurnal, Metrologiya i Izmeritel'naya Tekhnika, 1972, No 5, Abstract
No 5.32.918, by V.S.K.).

Translation: Methods are discussed for estimating the value and nature
of components of the total error in measurement of the electron temperature
of a plasma based on its thermal radio-frequency radiation (error in de-
termination of absolute temperature of comparison source, efficiency of
antennas, "blackness" factor of radiation of object, $P_x : P_e$ ratio, where P_x
is the power of microwave radiation received by the radiometer, while P_e
is the power of microwave noise radiation of the comparison source with
known temperature T_e). 14 Biblio. Refs.

1/1

USSR   UDC: 536.5(088.76):533.9.07

Kandyba, V. V., Iosel'son, G. L. and Lander, V. A.

"The Problem of Creating an SHF Standard for High Plasma Temperatures"

Moscow, Metrologiya, No. 8, 1972, pp. 3-15.

Abstract: The metrological problems of reproduction of the international practical temperature scale in the superhigh frequency band for the area of high and super high temperatures are steady. A test system is discussed, designed for calibration and adjustment of radio pyrometers together with their antenna systems. A high temperature SHF radiator with a broad aperture is described and investigated. This device can be used as a basis for the creation of a high temperature SHF noise temperature standard. The error in calibration is 6-10%, depending on the method selected. The results of testing showed that the primary source of error in repro- duction of the temperature scale in this frequency range is the error in the elemen- tary noise generator--a gas-discharge tube. The method suggested allows operating radio pyrometers to be calibrated together with their antenna systems for the first time.

1/1

USSR   UDC: 533.9.07

IOSEL'SON, G. L.

"On the Feasibility of Precision Measurement of Plasma Temperature from its SHF Emission"

Moscow, Izmeritel'naya Tekhnika, No 5, May 70, pp 48-50

Abstract: The article is a report on a method developed at the Khar'kov State Scientific Research Institute of Metrology to measure the electron temperature of a plasma by comparing the SHF emission from the plasma with pulse emission from a standard reference source. The proposed method takes account of the effect of scattering of reflected radiation, thus appreciably reducing the error due to the deviation from the ideal black body situation in real plasma specimens.

1/1

USSR   UDC: 621.391.825(088.8)

ZUYEV, V. N., IOSHCHENKO, A. N., KVASHNIN, Ye. F., SAVINYKH, V. L.

"A Reception Device for Orthogonal Wide-Band Radio Signals"

USSR Author's Certificate No 262940, filed 5 May 68, published 3 Jun 70
(from RZh-Radiotekhnika, No 11, Nov 70, Abstract No 11D56 P)

Translation: The device introduced by this patent provides coherent recep-
tion of orthogonal wide-band signals by the method of synchronous hetero-
dyning. Signals are fed from the output of channel multipliers to the signal
inputs of the corresponding coherent channel detectors. A common sinusoidal
reference voltage from the outputs of the channel multipliers is fed to the
second input of the coherent channel detectors through an adder, narrow-band
filter and phase shifter. The device is designed for radio telegraph com-
munications systems with an active pause. N. S.

1/1

TITLE--A DEVICE FOR RECEPTION OF ORTHOGONAL BROAD BAND RADIO SIGNALS -U-

AUTHOR-(04)-ZUYEV, V.I.., IOSHCHENKO, A.N., KVASHNIN, YE.F., SAVINYKH, V.I.

COUNTRY OF INFO--USSR

SOURCE--PATENT NO 262940
REFERENCE--MOSCOW, OTKRYTIYA, IZOBRET. PROM. OBRAZTSY, TOVARNYE ZNAKI NO
DATE PUBLISHED--04FEB70

SUBJECT AREAS--NAVIGATION, ELECTRONICS AND ELECTRICAL ENGR.

TOPIC TAGS--BROADBAND COMMUNICATION, ORTHGONAL FUNCTION, SIGNAL RECEPTION,
ELECTRONIC CIRCUIT, COMMUNICATION CHANNEL, SIGNAL DETECTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/1100   STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0112222
                    UNCLASSIFIED

CIRC ACCESSION NO--AA0112222
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   THIS AUTHOR'S CERTIFICATE
   INTRODUCES A DEVICE FOR RECEPTION OF ORTHOGONAL BROAD BAND RADIO
   SIGNALS.   THE UNIT CONTAINS CHANNEL MULTIPLIERS, NOISE GENERATORS,
   INTEGRATORS AND A COINCIDENCE CIRCUIT.   IT DIFFERS BECAUSE TO PROVIDE
   FOR COHERENT RECEPTION OF WIDE BAND SIGNALS, THE SIGNAL FROM THE OUTPUT
   OF THE CHANNEL MULTIPLIERS IS FED TO THE SIGNAL INPUTS OF THE
   CORRESPONDING COHERENT CHANNEL DETECTORS, WHILE A COMMON SINUSOIDAL
   REFERENCE VOLTAGE FROM THE OUTPUTS OF THE CHANNEL MULTIPLIERS IS
   SIMULTANEOUSLY APPLIED ACROSS THE SECOND INPUT OF THE COHERENT DETECTORS
   THROUGH A SUMMING CIRCUIT, NARROW BAND FILTER AND PHASE INVERTER.

UNCLASSIFIED

USSR   UDC 621.391.825

ZUYEV, V. N., IOSHCHENKO, A. N., KVASHNIN, Ye. F., SAVINYKH, V. L.

"A Device for Reception of Orthogonal Broad-Band Radio Signals"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 7, 4 Feb 70, p 36, Patent No 262940, Filed 5 May 68

Translation: This Author's Certificate introduces a device for reception of
orthogonal broad-band radio signals. The unit contains channel multipliers,
noise generators, integrators and a coincidence circuit. It differs because
to provide for coherent reception of wide-band signals, the signal from the
output of the channel multipliers is fed to the signal inputs of the cor-
responding coherent channel detectors, while a common sinusoidal reference
voltage from the outputs of the channel multipliers is simultaneously applied
across the second input of the coherent detectors through a summing circuit,
narrow-band filter and phase inverter.

1/1

1/2   015   UNCLASSIFIED   PROCESSING DATE--30OCT70
TITLE--KINETICS OF THE ABSORPTION OF NITROGEN TRIOXIDE BY SULFURIC ACID
 -U-
AUTHOR-(02)-IOSHPA, I.YE., IVANOV, V.G.

COUNTRY OF INFO--USSR

SOURCE--KHIM. PROM. (MOSCOW) 1970, 46(3), 184-6

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--NITROGEN OXIDE, GAS ABSORPTION, SULFURIC ACID, CHEMICAL
  KINETICS   .

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1998/0937   STEP NO--UR/0064/70/046/003/0184/0186

CIRC ACCESSION NO--AP0121539
                     UNCLASSIFIED

CIRC ACCESSION NO--AP0121539
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT.   IN THE ABSORPTION OF N SUB2 O SUB3
   FROM GASES CONTG. 10-11 VOL. PERCENT N SUB2 O SUB3 BY 84-92PERCENT H
   SUB2 SO SUB4 IN PACKED COLUMNS AT 30-60DEGREES, THE RATE CONST. OF THE
   ABSORPTION (WHOSE ABS. VALUES WERE SIMILAR TO 3-15 G-(M PRIME2 HR TORR))
   DECREASED SHARPLY WITH INCREASING TEMP. AND DECREASED WITH DECREASING
   INITIAL N SUB2 O SUB3 CONCN. IN THE GAS, WITH INCREASING INITIAL CONCN.
   IN THE LIQ. PHASE, AND WITH DECREASING ACID CONCN.; UNDER THOSE
   CONDITIONS, THE MAX. N SUB2 O SUB3 CONCNS. ATTAINED WERE 12.93 AND 11.3
   WT. PERCENT IN 92 AND 84PERCENT H SUB2 SO SUB4, RESP.   FACILITY:
   GOR'K. POLITEKH. INST. IM. ZHDANOVA, GORKI, USSR.

UNCLASSIFIED

USSR ·   UDC 621.37

IOSHPE, D. M.

"Controllable Magnetostatic Superhigh Frequency Delay Line with Frequency
Control"

Abstract: A description is presented of a magnetostatic delay line with a
permanent magnet operating at a frequency of f_0 = 4.5 gigahertz developed in

1970. In the described model, a monocrystalline IZhG rod 9.48 mm long and 2.05
mm in diameter is used with orientation of the rod axis along H. Its ends are
polished and strictly parallel. The dependence of the longitudinal external
displacement field H_0 (oersteds) on f (gigahertz) required to obtain a delay
of τ = 1 microsecond is defined by the formula H_0 = 335 f - 45; that is, the

frequency control factor is approximately 0.355 oersteds·megahertz^{-1}, and the
displacement field is approximately 1,550 oersteds at f_0. The comparatively

high field is provided by a horseshoe magnet the operating point of which is
selected by means of magnetic shunts.
        The described design is distinguished by complete removal of the
1/2

USSR ·

restriction of τ from below, lack of necessity for orthogonal arrangement of
the exciting antennas, and availability of electric retuning in the $f_0 \pm 200$
megaHertz band by varying the current in the special tuning coil from 0 to
$\pm$ 800 milliHertz. The delay line, which weighs 300 grams can be used as a
dispersion filter for compressing FM pulses or as a delay line with electric
frequency control.

USSR

UDC   620.98

BELYAYEV, B. V. and IOSIFOV, A. S.

"Some Problems of Reliability Associated with Multi-Element Chemical Current
Sources"

Novocherkassk, Izvestiya vysshikh uchebnykh zavedeniy: Elektromekhanika, No 5,
1971, pp 574-577

Abstract: The authors present the methodology for the selection of and provide the
basis for the empirical formula used to calculate the reliability of the multi-
element circuit of chemical current sources. Based on the theorem of setting up
an experiment, an expression is derived for the probability associated with the
appearance of combinations of non-operating elements in multi-element circuits.
Simpler formulas are given based on the above for practical calculations for
existing non-operating intensity values of the elements λ . Original article:
one table, eight formulas, two figures, and five bibliographic entries.
1/1

CSO: 1860-W   - END -

USSR   UDC 621.762:621.984.5

SEVERDENKO, V. P., and IOSIFOV, V. N., Physico Technical Institute, Academy of Sciences, Belorussian SSR

"Pressing of Briquettes of Aluminum Granules"

Abstract: Powder metallurgy, allowing the development of extremely high cooling rates by spraying liquid metal droplets into water, can lead to a displacement of the liquidus line in alloys, forming supersaturated solid solutions with extremely high alloying element contents. These phenomena were studied by producing aluminum powder by pouring melted aluminum into a centrifuge and allowing droplets to spray out of holes around the periphery of the centrifuge basket into water. The aluminum powder thus produced was pressed into briquettes in a special stamp. It was found that the size of the granules had no significant influence on the density of the briquettes as a function of pressing pressure. The density of the briquettes as a function of pressure follow the ordinary regularities observed in pressing powder materials. The calculated pressing curves produced analytically and by graph analysis corresponded to the experimental curves with sufficient accuracy.
1/1

ELECTRONICS

Amplifiers

USSR

IOSIFOVICH, BELEN'KIY BORIS, and BORISOVICH, MINTS MARK

"Highly Sensitive Direct Current Amplifiers with Converters" (Vysokochuvs-
tvitel'nyye Usiliteli Postoyannogo Toka S Preobrazovatelyami), Leningrad,
Izd-vo "Energiya," 1970, 8,000 copies, 384 pages

Abstract: The book is devoted to the design and application of highly sensi-
tive direct current amplifiers (UPT) with input signal conversion. Galvano-
metric converters and converters of small direct current signals to variable
voltage (modulators) are examined in detail. Special attention is given to
the methods of engineering calculations of amplifiers and to the protection
of amplifiers from interference. Circuits and the characteristics of highly
sensitive UPT with converters manufactured by industry are presented, as well
as, a comprehensive bibliography.

The book is intended for specialists working in the development and applica-
tion of measuring and automatic equipment intended for amplification, measure-
ment, and registration of small fixed and slowly changing signals, and may be
useful to students of higher institutes of learning.

The book contains numerous formulas, figures, and 986 citations in the
bibliography.
1/2

USSR

IOSIFOVICH, B. B., and BORISOVICH, M. M., "Highly Sensitive Direct Current
Amplifiers with Converters" (Vysokochuvstvitel'nyye Usiliteli Postoyannogo
Toka S Preobrazovatelyami), Leningrad, Izd-vo "Energiya," 1970, 8,000 copies,
384 pages

The chapter headings are as follows:

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- 1 -

USSR   UDC 53. 01. 45+537+538

IOSIF'YAN, A. G., Academician, Armenian Academy of Sciences

"Dynamics of the Electromagneton as a Quantum of Action"

Abstract: This article presents a theory of the electromagneton as a quantum of action appearing in the interaction of a material mass with an atomic-crystalline lattice either as an electron in the field of a vector potential $\vec{A}$ or as a fluxoid in the field of a vector potential $\overline{K}$, in a system of dual inverse-conjugate differential equations in spaces Q and ϕ. The system of equations is given in the form of two parallel sets of equations, one for the electron phase space, the other for the fluxoid phase space. The author asserts that no one has as yet succeeded, on the basis of past theories, in construcuing the Lagrangian appearing in the ordinary Maxwell equations used for these theories, and he shows that the system of equations he proposes overcomes this as well as other difficulties because it provides a new physical interpretation of the magnetic and electric sources.

1/1

- 100 -

USSR

IOSIF'YAN, A. G., Academician of the Armenian SSR Academy of Sciences and
KONOPLEVA, N. P.

"Isoperimetric Variational Problems in Field Theory"

Moscow, Doklady Akademii Nauk SSR, Vol 198, No 5, 11 Jun 71, pp 1036-1039

Abstract: Isoperimetric problems are problems in seeking an arbitrary ex-
tremum of a certain functional S when the supplementary condition for variation
is the retention of another functional S_1: that is, when the supplementary con-
ditions are integral ones. The authors show that a number of variational prob-
lems in field theory can be studied as isoperimetric ones: for example, tran-
sition from a system of noninteracting Dirac fields to a system with inter-
action, as well as others. The author then examines the variational problem
of finding the extremum of a certain functional under the condition that
another functional [equation (1)] exists. Then according to general law it
is necessary to construct an auxiliary functional [equation (2)] and find its
extremum. The supplementary conditions remove the extraneous variables, and
only one given spin remains. The supplementary conditions equate the number
of existing variables and the number of equations for the extremal. Such a

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USSR

IOSIF'YAN, A. G., Doklady Akademii Nauk SSR, Vol 198, No 5, 11 Jun 71, pp 1036-1039

situation corresponds to a narrowing of the invariance of extremals S relative to the infinite group $G_{\infty, T}$ up to invariance of the equations in (3) relative to G_T. The article contains a bibliography of 4 titles.

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USSR

KUVSHINOV, YU. A., IOSILEVICH, G. B.

"Testing Threaded Parts Under Repeated Impact Loading"

Tr. Ufim. aviats. in-ta (Works of the Ufa Aviation Institute), 1971, vyp. 32, pp 134-141 (from RZh—Mekhanika, No 6, Jun 73, Abstract No 6V902)

Translation: The experiments were performed at high impact rates, on the order of $7.4 \cdot 10^4$ kg/mm^2-sec. As a result of the high degree of dispersion of the experimental data, they were processed by the statistical method. The results of the tests indicate that the impact fatigue strength for steel is approximately 55% higher than the cyclic strength and for titanium, it is 60% higher. The bibliography has 11 entries.

1/1

USSR

UDC 621.317.7:621.391.822

ALMAZOV-DOLZHENKO, K. I., IOSILEVICH, N. N.

"Appliction of P-I-N Modulators when Measuring the Noise Coefficient of Super-high Frequency Amplijiers"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron. SVCh (Electronic Engineering. Scientific and Technical Collection. Microwave Electronics), 1970, vyp. 12, pp 99-110 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4A269)

Translation: Application of modulators based on p-i-n diodes in noise coefficient meters permits elimination of the measurement error as a result of the effect of feed modulation on the operating conditions of the amplifier reaching 10-20%. It also permits use of a noise generator in the continuous operating mode, which simplifies the procedure for testing it with respect to noise level.

1/1

USSR

BORSHCHEVSKIY, M. Z., ZORINA, E. S., IOSLOVICH, I. V.

"Optimal Braking of Rotation of an Asymmetrical Satellite About its Center of Mass"

Upr. Dvizhushchimisya Ob'yektami. Tr. IV Vses. Soveshch. po Avtomat. upr. Tbilisi, 1968 [Control of Moving Objects, Works of Fourth All-Union Conference on Automatic Control, Tbilisi, 1968 -- Collection of Works], Moscow, 1972, pp 293-294, (Translated from Referativnyy Zhurnal, Mekhanika, No 10, 1972, Abstract No 10 A49).

Translation: The variational problem is studied of optimal braking of the rotation of a satellite about its center of mass, i.e., the problem of optimal preliminary stabilization. The control actions are applied using two pairs of reaction engines, immobily attached to the body of the satellite, so that in the system of coordinates coupled to the main moments of inertia of the satellite the force of the control action is directed along a fixed straight line, and this line does not coincide with any of the main axes of the ellipsoid of inertia. The optimality criterion used is the total consumption of working fluid with variable time of the braking process. It is assumed that the satellite is a solid, performing Euler-Poinsot motion about its center of mass when no control actions are applied. The ellipsoid

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USSR

BORSHCHEVSKIY, M. Z., ZORINA, E. S., IOSLOVICH, I. V., Upr. Dvizhushchimisya Ob'yektami. Tr. IV Vses. Soveshch. po Avtomat. upr. Tbilisi, 1968, Moscow, 1972, pp 293-294.

of inertia of the satellite may be arbitrary, but it is considered that the moments of inertia do not change during braking. Sufficient conditions of optimality are used to synthesize the optimal control. As a result of analytic and partially numerical solution of the Bellman equation, switching surfaces and zero proximity lines are produced, allowing a solution consisting of cyclical slipping modes to be constructed. These modes sometimes do not convert to pulse solutions with unlimited motor thrust, which is the first example of modes of this type.

2/2

USSR   •   UDC: 629.78.017.2

BORSHCHEVSKIY, M. Z., ZORINA, E. S., IOSLOVICH, I. V.

"Optimum Deceleration of the Rotation of an Asymmetric Satellite About its Center of Mass"

Moscow, Upr. dvizhushchimisya ob"yektami. Tr. IV Vses. soveshch. po avtomat. upr. Tbilisi, 1968--sbornik (Control of Moving Objects. Works of the Fourth All-Union Conference on Automatic Control Tbilisi, 1968--collection of papers), 1972, pp 293-294 (from RZh-Raketostroyeniye, No 10, Oct 72, abstract No 10.41.69)

Translation: The paper deals with the variational problem of optimum braking of the rotation of a satellite about its center of gravity, i. e. the problem of optimum prestabilization. The controlling action is provided by two pairs of rocket engines rigidly fixed in the body of the satellite so that in the coordinate system associated with the principal moments of inertia of the satellite the moment of the controlling action is directed along a fixed straight line. This straight line does not coincide with any single principal axis of the ellipsoid of inertia. The optimality criterion is taken as the expenditures of reaction mass for an undetermined braking time. Résumé.
1/1

TITLE--CONCENTRATION FUNCTION OF THE DIFFUSION OF READILY CONDENSED GASES
   THROUGH RUBBERS -U-
AUTHOR-(04)-SHOROKHOVA, N.V., VASENIN, R.M., KOLYADINA, N.G., IOSSEL, G.F.

COUNTRY OF INFO--USSR

SOURCE--KAUCH. REZINA 1970, 29(3), 21-3

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PERMEABILITY MEASUREMENT, GAS ABSORPTION, GAS DIFFUSION,
   AMMONIA, FREON, SYNTHETIC RUBBER/(U)F12 FREON, (U)F22 FREON, (U)SKMS10
   SYNTHETIC RUBBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0531   STEP NO--UR/0138/70/029/003/0021/0023

CIRC ACCESSION NO--AP0119450
                        UNCLASSIFIED

CIRC ACCESSION NO--AP0119450
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PERMEABILITY COEFF. (P), THE
GAS ABSORPTION COEFF. (SIGMA), AND THE GAS DIFFUSION COEFF. (D) OF NH
SUB3, FREON F-12, AND FREON F-22 WITH RESPECT TO UNFILLED SKMS-10
SYNTHETIC RUBBER MEMBRANES ARE DEPENDENT ON THE PARTIAL GAS PRESSURE (OR
CONCN.) IN GAS MIXTS. P, SIGMA, AND D INCREASE LINEARLY WITH NH SUB3
PRESSURE AND NONLINEARLY WITH F-12 OR F-22 PRESSURE. THE CALCD. P
VALUES FROM THE RELATION P EQUALS DSIGMA AND THE EXPTL. P VALUES
COINCIDED.   FACILITY: LENINGRAD. FILIAL NAUCH.-ISSLED. INST.
REZIN. PROM., LENINGRAD, USSR.

UNCLASSIFIED

USSR

CHERNYKH, I.V., IOTENKO, L.N.

"Blocking Oscillator"

Translation: A transistorized blocking oscillator is proposed with a transformer in the commutator. With the object of increasing the input resistance of the oscillator, it contains a diode-capacitance bridge in which the point in common of the capacitors is connected with the first tap of the secondary winding of the transformer, and the point in common of the transistors with the second tap of the secondary winding of the transformer. The point in common of the first transistor and the first capacitor is connected to the end of the secondary winding of the transformer and to the first output terminal, and the point in common of the second transistor and second capacitor to the second output terminal and to the base of the transistor.

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Psychiatry

USSR

KARVASARSKIY, B. D., IOVLEV, B. V., KALININ, O. M., STABROVSKIY, Ye. M., SUSLOV, V. I., and TARABRINA, N. V., Department of Neuroses and Psychotherapy, Leningrad Scientific Research Psychoneurological Institute imeni V. M. Bekhterev

"Connection Between Experimental Psychological Characteristics of the Personality and Biochemical Indexes in Relation to Problems of the Study of Psychic Stress in Neurotics"

Abstract: Correlations between psychological data obtained from various tests (MMPI, frustration method of Rozenzweig, Eysenck questionnaire, and others) and biochemical data (blood tests for 11-hydroxycorticosteroids, serotonin, protein-bound iodine; urine tests for dopamine, noradrenalin, adrenalin, vanillylmandelic acid and others) were established. These relationships were determined for 48 neurotics before applied stress, and for a control group of healthy persons. The relationships were arrived at by the method of regression analysis using a computer.

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USSR

It is clear from the results that regression analysis is valuable in fore-
casting the effects of stress on neurotics, which in turn makes it poten-
tially valuable in studying the pathogenesis and therapy of neuroses.

2/2

Acc. Nr: *AP0052090*

IOVLEV BV.

Ref. Code: UR0246

FACTOR ANALYSIS IN STUDIES WITH THE USE OF RATING PSYCHOPATHOLOGICAL SCALES

B. V. Ioulev, M. M. Kabanov, O. M. Kalinin, B. D. Karvasarskiy
K. V. Korabelnikov

The presentation deals with the possibilities of using rating psychopathological scales
in the evaluation of problems of rehabilitation of mental patients. The authors report and
analyze the data of factor analysis in schizophrenia, depressive states, obtained with the aid
of computors. The results demonstrate that it is possible to use factor analysis for the study
of interconnections of psychopathological symptoms as well as of correlations between psy-
chopathological and biological indices.

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REEL/FRAME

19820628

vdh

2

Acc. Nr. AP0055641 — Abstracting Service: 6-70   Ref. Code 4R0460
CHEMICAL ABST.

112192g Membrane made from ultrathin polymer films.
Papkov, S. P.; Iovleva, M. M.; Banduryan, S. I. (Vses.
Nauch.-Issled. Inst. Iskusstv. Volokna, Mytishchi, USSR). Vyso-
komol. Soedin., Ser. B 1970, 12(2), 153-5 (Russ.). Ultrafine films
prepd. from a 2% soln. of secondary cellulose acetate (I) (mol. wt.
87,000) in AcOH or from viscose (II) were examd. under an elec-
tron microscope. A photomicrograph of I films revealed 2 layers:
a primary membrane, which was very porous and fine, and a re-
ticular layer contg. large globules. The primary membrane of a
II film (obtained on the surface of a 1-3% H_2SO_4 soln. or H_2O)
was smooth whereas the 2nd layer had a variable morphology de-
pending on the compn., rheol. properties, and shrinkage during
syneresis. The formation of the primary membrane depended on
the reaction of the polymer soln. with the pptg. agent.   CKJR

REEL/FRAME
19840943

USSR

IOVNOVICH, M. L., and FIKS, M. M.

"Accumulation of Multicharge Ions in Bunched Relativistic Electrons"

Abstract: The authors state that intensive development of the me-
thod of collective ion acceleration proposed by V. I. Veksler et
al (Atomnaya energiya, 24, 1968, p 317) is now going on. The ba-
sis of this method is the possibility of obtaining stable electron-
ion bunching. Two-component bunching requires the formation of a
thin ring of relativistic electrons in the external magnetic field
and the consequent accumulation of ions. This article considers
the process of accumulation of multicharge ions of heavy atoms in
such a ring, discussing the accumulation of monatomic gas ions in
the relativistic electron bunching, electron losses occurring with
the accumulation of ions, and electron losses due to single colli-
sions and multiple dispersion. Curves are plotted for the accumu-
lation of xenon in the electron bunching as a function of time.

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USSR   UDC 536.21

BERMAN, N. R., IOYSHER, A. M., and CHEBAN, V. G.

"The Problem of Dynamic Heat Conductivity of a Hollow Cylinder"

Kishinev, Izvestiya Akademii Nauk Moldavskoy SSR -- Seriya Fizikotekhni-
cheskikh i Matematicheskikh Nauk, No 2, 1972, pp 3-10

Abstract: The problem of a nonstationary temperature field with no phase
transitions is considered under the condition that the thermophysical
parameters of the medium and the cylinder material are independent of the
temperature. This cylinder is assumed to be hollow and semibounded, and
is drawn into an oven whose temperature is maintained constant; the rate
at which the cylinder is drawn into the oven is also constant. It is
assumed that the outer and inner surfaces of the cylinder have specified
boundary value conditions of the third kind and that the initial tempera-
ture distribution is determined by the solution of the stationary problem
at zero velocity of the cylinder. The problem is divided into three
stages: determining the initial temperature; solving for the transient
heating mode; and finally, examining the quasi-stationary state. It is
noted that the solutions here obtained can be used for describing the
surface tempering of tubes, the cooling of glass tubes during the casting
of miniaturized conductors, and other technical processes.
1/1

USSR   UDC: 531.01

IPATOV, A. F.

"Motions of the S. V. Kovalevskaya Gyroscope on the Boundary of the Region of Ultra-Ellipticity"

Uch. zap. Petrozavodsk. un-ta (Scientific Notes of Petrozavodsk University), 18, No 2, 1970(1971), pp 6-7 (from RZh-Mekhanika, No 9, Sep 72, Abstract No 9A78)

Translation: In studying the motion of S. V. Kovalevskaya's gyroscope, an important part is played by the location of the roots of the principal polynomial

$$S(s) = [s^2 - 6l; s^2 + (9l_1^2 - k^2 + 1)s - 2l^2][(s - 3l_1)^2 - k^2]$$

in which l_1, l and k are constants of the integrals of energy, areas, and S. V. Kovalevskaya's integral. The author introduces the space of parameters l_1, l, k, and considers sets in this space on which the polynomial $S(s)$ has multiple roots. The corresponding surfaces are constructed. The behavior of solutions of the system

$$\frac{ds_1}{\sqrt{S(s_1)}} + \frac{ds_2}{\sqrt{S(s_2)}} = 0, \quad \frac{s_1 ds_1}{\sqrt{S(s_1)}} + \frac{s_2 ds_2}{\sqrt{S(s_2)}} = -i\sqrt{2}dt$$

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IPATOV, A. F., Uch. zap. Petrozavodsk. un-ta, 18, No 2, 1970(1971), pp 6-7

is studied on each of these surfaces, and the sliding hodograph of angular velocity of the body is studied for some cases.   P. V. Kharlamov.

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IPATOV, A.S.

data link systems

All-Communicarions/ also Data Link Systems

TECHNICAL FACILITIES OF THE SIRENA-1 DATA LINK SYSTEM

[Article by Candidates of Technical Sciences V. N. Silayev, O. K. Bazilenko, V. L. Babrukh, Yu. F. Buhromov, V. Ye. Khazatskiy, and Engineers ... Ipatov, Yu. ... Borukhatskiy, V. ... Topov; Moscow, Primery i Sistemy UPPAVLyaye—Russian, No 4, April 1973, pp 1-4]

The rational organization of a data link in geographically scattered system of the type Sirena [1] largely determines the economic effective-ness of the entire system.

A data link combines into one system the peripheral subdivisions [2] and the technological data processing center (UPC) [3]. The link is a set of channels and technical facilities that provide a high communication channel utilization coefficient, reliable transmission and processing of data and direct multichannel communications. Accordingly, the technical facilities of a link are divided into three groups: data traffic concentra-tion facilities (UTC); data exchange reliability group and multichannel communications group.

Means of Concentrating Data Flows

The purpose of facilities of this group is to ensure economically efficient utilization of uncommutated channels K_c for a given subscriber servicing quality. The prerequisites for extensive application of various data traffic concentration methods in a data link were formulated in [1].

According to the criterion $\phi = l_i/l_j$, of the ratio of distances between the sources (1-n) and the concentrator K and between the concentrator and UPC, the following methods of traffic concentration may be used (Figure 1): local concentration ($l_i << l_j$; $l_i < 100$ m); central traffic concentration ($l_i << l_j$; $l_j < 100$ m), concentration of data from geo-graphically scattered points ($l_i = l_j$; $l_i, l_j >> 100$ m). The technical facilities of UTC may be based on the utilization of the principles of commutation of either the channels or the traffic.

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[I - USSR - F]

IPATOV, M. Ye.

The problem of distribution of micro-operations among the fields of the control word is solved from the condition of their incompatibility. To obtain codes of minimum length each micro-operation is represented by only one field. The problem is formulated in terms of set theory as the problem of determining the minimum coverage of a set of computer micro-operations by a set of groups of incompatible micro-operations.

One of the main conditions for achieving high computer capacity with microprogrammed control is the effective organization of storage of the microprograms in permanent storage (PS). In PS a microprogram is represented by a collection of control words (CW), consisting of operation and address parts. The operation part represents one microcommand and containing a set of micro-operations, executed in one machine cycle; the address portion of CW determines the order of execution of microcommands.

The chosen method of coding the MC should provide the possibility of representing in the CW any admissible combination of micro-operations. In order to satisfy this condition the operation part of the CW is broken down into several fields each of which is intended for the coding of a group of micro-operations (MO). Here there must be the capability of representing any microcommand as a set of micro-operations from various fields of the CW.

Optimum coding is that which ensures the minimum length of the operation part. From this it follows that each micro-operation should be represented in only one field of the CW. In other words, if A = (a₀,
a₁, ..., aₙ) is a set of micro-operations of the computer and

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IPATOVA, E. N., KALYADIN, N. I., TIKHONOV, G. A.

"On the Problem of Constructing Filters in Calculating Boolean
Functions"

V sb. Primeneniye vychisl. tekhn. v mashinostr. (Use of Com-
puter Technology in Machine Building--collection of works),
Izhevsk, 1971, pp 52-57 (from RZh-Kibernetika, No 8, Aug 72,
Abstract No 8V423)

[No abstract]

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1/2. . 329   UNCLASSIFIED   PROCESSING DATE--11SEP70
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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A SIMPLE THEORY OF THEIR LATTICE
   VIBRATION ABSORPTION BY THE OPTICAL MODES OF CUBIC BINARY METALLIC ALLOY
   IS PRESENTED AND ITS STRENGTH IS ESTD. WITH RESPECT TO THE STRENGTH OF
   THE BACKGROUND ABSORPTION BY FREE CARRIERS. THE POSSIBILITY OF EXPTL.
   OBSERVATION OF THIS ABSORPTION IS DISCUSSED.

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UDC 612.58.019

DAUDOVA, G. M., and IPATJEVA, N. V.

"The Effect of Environmental Temperature on the Spontaneous Warming of the Suslik on Awakening From Hibernation"

Abstract: This article presents research on further exploration of the influence of the temperature factor on rates of organism warming as a whole, and by individual body areas and organs, particularly the heart and brain. Susliks were used, awakening at various environmental temperatures. Additionally, small negative temperatures were used at which, according to data in the literature, prolonged hibernation is possible. These were interrupted by brief spontaneous awakenings (and rewarming). The animals were divided into three groups. Hibernation temperatures were maintained of: Group I -- 10^0; II -- 1^0; and for III, -1 and -2^0. On awakening the same temperatures were maintained. Results showed that all susliks experienced spontaneous warming on awakening, without any additional external warmth. Susliks from Group I took 60-90 minutes to warm themselves and awaken. For Group II, the process took 150-180 m. The third group took an average of 300 minutes, the initial phase being the slowest. In susliks emerging from hibernation, heart tem-

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peratures rise sooner than those of the brain. Apparently heat generates
in anterior zone muscles and, in initial phases, in adipose tissue. Heat,
via blood, enters the heart, then anterior sections and brain.

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IPPOLITOV F.V.

Memory AND Trace Processes

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IPPOLITOV, F. V., and GOLUBEVA, E. A., Moscow

"The Second All Union Conference on Memory and Trace Processes"

Moscow, Voprosy Psikhologii, No 6, Nov-Dec 70, pp 175-179

Abstract: According to M. N. Livanov, this conference was concerned with seven primary questions: 1) whether memory is a function of individual cells or a system phenomenon; 2) what parts of the brain are involved in memory; 3) what biochemical processes are involved; 4) the role of synapses in memory; 5) the relationship of trace processes in neuron structures, and various forms of memory; 6) the functioning, organization of memory of different durations; 7) the possibilities of intentionally influencing memory; 8) the physiological mechanisms of coding, storage, genesis of memory; 11) the role of emotions in memory; 10) the ontogenetic processes of memory; 11) the neuropsychological classification of memory forms and processes.

The conference was divided into six sessions, without subdivisions into sections. The first session, on biochemical and pharmacological aspects of memory, involved four primary themes: 1) The biochemical uniqueness of various kinds of memory, functions, and processes; 2) the role of protein and RNA synthesis in reproducing; 3) The activation of glial cells in trace processes; 4) "Dissociated learning." The second and third themes were closely related by studies showing that

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IPPOLITOV, F. V., et al., Voprosy Psikhologii, No 6, Nov-Dec 70, pp 175-179

electrical activity suppressed the synthesis of some substances in the cells, in glial cells for several minutes.

The second session was concerned with trace processes in neuron systems. Reports concerned: 1) Failure to obtain any observations in circulating neuron currents in higher animals, although there have been observed in artmropoda and are commonly assumed; 2) Information coding in the brain of a cat, an activity by a computer; 3) The extremely differentiated structures in the limbic system of a rabbit; 4) Trace processes in the motor regions of the cat cortex, stimulated by direct current.

The third session was devoted to electrophysiological investigations of trace processes. Reports at this session emphasized the participation of many areas of the brain in motor processes, and particularly the role of the reticular formation in synchronizing electrical impulses in different portions of the brain.

The fourth session considered behavioral and evolutionary aspects of memory. Various reports covered subjects ranging from the effects of RNA-ase in the cortolation of learning, retention, and age in rats. The fifth session was devoted to the structural foundations of memory. Its highlight was a report by Hyrtbek on the

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